

IN THE CLAIMS:

1-41 (cancelled).

42. (original) A structural beam comprising;
- an upper surface in compression due to a loading force;
 - a lower surface in tension due to the loading force;
 - means for connecting the upper and lower surfaces;
 - a plurality of compressive structural elements disposed along the length of the upper surface, each compressive structural element comprising a first enclosure having first walls surrounding a first cavity, and a first non-compressible material disposed in the first cavity, wherein the first walls are shaped such that the loading force tends to compress the compressive structural element by a first deflection causing an amplified second deflection of the first walls into the first non-compressible material, exerting a compressive force against the first non-compressible material, resulting in a resistance to the first deflection and the loading force; and
 - a plurality of tensile structural elements disposed along the length of the lower surface, each tensile structural element comprising a second enclosure having second walls surrounding a second cavity, and a second non-compressible material disposed in the second cavity, wherein the second walls are shaped such that the loading force tends to elongate the tensile structural element by a third deflection causing an amplified fourth deflection of the second walls into the second non-compressible material, exerting a compressive force against the second non-compressible material, resulting in a resistance to the third deflection and the loading force.

43. (original) The structural beam of claim 42, wherein the shape of the beam is an I-beam and the means for connecting the upper and lower surfaces is a web.

44. (original) The structural beam of claim 42, wherein the first and second walls are of a uniform thickness such that the second and fourth deflections causes minimal migration of the first and second non-compressible materials, respectively.

45. (original) The structural beam of claim 42, wherein the first and second walls gradually become thicker at the center of the first and second cavities, such that the second and fourth deflections causes increased migration of the first and second non-compressible materials, respectively.

46. (original) The tensile structural element of claim 42, wherein at least one of the first and second non-compressible materials is an elastomer.

47. (original) The tensile structural element of claim 42, wherein at least one of the first and second non-compressible materials is a liquid.

48. (original) The compressive structural element of claim 42, wherein at least one of the first and second non-compressible materials is a combination of elastomer and liquid.

49-114 (cancelled).